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ABSTRACT

New Zealand universities have been examining the possibilities of abolishing end-of-year examinations and placing more importance on coursework. This monograph offers the alternative of assessing students by formal assignments. The formal assignment system has 4 essential characteristics which distinguish it from other methods of assessment. (1) A formal assignment may be the result of any type of educational activity, provided that there is sufficient tangible evidence of study which can be assessed by tutors and be available for moderation by an external examiner at the end of the course. (2) Each student with his tutor analyses and discusses the merit and failings of his assignment in regular individual tutorials with the overt aim of personal intellectual development. (3) Students know beforehand on what specific work they are to be assessed and usually are expected to contribute to the definition of the assignment. (4) The grade awarded at the end of the course is based on the assessment of assignments carried out throughout the entire course. (HS)

ED 059654

THE ASSESSMENTS OF STUDENTS BY FORMAL ASSIGNMENTS

by
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Publications include "School Science for Tomorrow's Citizens" (1953) and "Science and Society: The Meaning and Importance of Scientific Method" (1968) and various papers on science education.

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FOREWORD

Assessment by formal assignment was devised by the eight founder members of the Department of Education of what is now Trent Polytechnic. My colleagues were A Isaacs, A Macdonald, D J Mortimer, W R Slack, J W P Taylor, C A Waite and H Webster. Three new generations of colleagues have joined us since then and, in practising this method of assessment, have contributed to the continuing discussions of its merits, problems and potential. These discussions have gone beyond Trent Polytechnic as other colleges in the Nottingham School of Education area have adopted formal assignment assessment, and, as is to be expected, a number of variations in approach have developed. I must make it clear that this paper is a personal interpretation of formal assignments, written in the light of three and a half years of discussion; while I hope it is accurate in factual assertion I recognise that it cannot reflect every shade of opinion. It is written in the hope that it will encourage further discussion within our own colleges and beyond. My indebtitude to colleagues in Trent Polytechnic is evident throughout the paper; in addition I would like to acknowledge the help and encouragement which has come from the staff of the Colleges Division of the School of Education and, in particular, from Professor H Davies.

Assessment by examination is under frequent attack; experience of formal assignment assessment has convinced many of us that this is a much more satisfactory approach to assessment.

Michael Bassey

PREFACE

New Zealand universities have been examining the possibilities of abolishing end-of-year examinations and placing more importance on course work. This monograph has been published by the New Zealand University Students' Association in the hope that it may fill a gap in discussions on continuous assessment.

Dr Michael Bassey's paper is of particular value because it is based on first-hand experience. While it deals specifically with the assessment of teacher trainees there is much that could be readily adopted by universities in any country.

This monograph has been written by an academic, for academics. It is, I believe, a cautious account of assessment by formal assignments and, more importantly, provides guidelines that are consistent with the highest ideals of university education.

The Research Office for the Study of Higher Education, set up by N.Z.U.S.A. in 1968, is grateful to Dr Bassey for his contribution to the office's publications, and for his permission to publish this paper.

Lindsay G. Wright
Education Research Officer
New Zealand University Student's Association

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PART I THE SYSTEM OF FORMAL ASSIGNMENTS

INTRODUCTION

The assessment of students for the Certificate of Education Nottingham University in nearly all Departments of the constituent Colleges of the Institute of Education is by formal assignment, with no final written examination.

The term "formal assignment" was coined in 1967 to describe the particular characteristics of this method of assessment, which was devised in the newly formed Department of Education of Nottingham Regional College of Technology (now Trent Polytechnic).

Assessment for the Certificate by formal assignment was first approved by the Academic Board of the Institute in November 1967 and subsequently ratified by the Senate. Prior to formal assignments, assessment in most subjects was based on a final examination and on work done during the course, candidates needing to "satisfy the examiners" in both. The examinations were carried out with careful attention to formal procedure – secrecy in setting, rigorous invigilation, safeguarding of scripts, scrupulous marking, external moderation – but course work was less clearly defined and the task of the External Examiner in approving the assessment proposed by an Internal Examiner was problematic. Should course-work include all the work of a student? Could the subjective opinions of tutors on, for example, seminar performance be included? Should the student know when he is being assessed? How much should the External Examiner see in order to " approve"? Although equal to the examination in status in the Regulations course-work tended to be debased in the eyes of students, staff and examiners, and it was generally felt that the written examination was the "real" test. The formal assignment system, by abolishing the final written examination, shifted the emphasis from proficiency at the end to merit of activity throughout the course. In order that a high degree of objectivity of assessment, which had been an important characteristic of the final examination, should be retained, it was decided that assignments should be limited to work which could be available to External Examiners for moderation.

THE FOUR CHARACTERISTICS OF FORMAL ASSIGNMENTS

The formal assignment system has four essential characteristics which distinguish it from other methods of assessment.

(i) **A formal assignment may be the result of any type of educational activity, provided that there is sufficient tangible evidence of study which can be assessed by tutors and be available for moderation by an External Examiner at the end of the course.** For example, a formal assignment may be an essay or report on paper, tape or film; a construction; a piece of two or three dimensional art work; or a written test. The same topic may be given to all students in a group, topics may be allocated to individuals, a choice of topics may be offered, or students may be invited to find their own topic (More kinds of activity can be used for assessment than is possible in traditional examinations. The requirement of "tangible evidence of study" excludes the assessment of events, such as seminar performance, and of nebulous personal qualities, such as sociability or co-operativeness.)

(ii) **Each student with his tutor analyses and discusses the merit and failings of his assignment in regular individual tutorials with the overt aim of personal intellectual development: he has a tutor for Education and Main Subject.** (This is an important difference from assessment by traditional examination, where the scripts are never seen again by students).

(iii) **Students know beforehand on what specific work they are to be assessed and usually are expected to contribute to the definition of the assignment.**

At the beginning of each term, or earlier, the outline plan for formal assignments for the term is announced; details are usually worked out in conjunction with students. (In the same way the candidate for a traditional examination knows what is required of him for assessment, but in some forms of continuous assessment students are uncertain as to the activities being assessed.)

(iv) **The grade awarded at the end of the course and recorded on the Certificate is based on the assessment of assignments carried out throughout the entire course.** (This is a basic distinction from final examination assessment.) Usually the work of the last year carries more weight than that of earlier years.

THE NATURE OF ASSIGNMENTS

Kerr's model for curriculum design (1) is a tetrahedron with the four faces representing objectives, content, learning experiences, and evaluation; the tetrahedron symbolises the way in which each of these faces of the curriculum is shaped by the shape of the other three.

Assessment by formal assignments permits a flexibility in evaluation which enables the inter-relating shapes of objectives, content and learning experiences to be tailored to the needs of individual students. But this method of assessment also entails a powerful restraint on the organization of the curriculum; **there must be regular individual tutorials for which both students and tutor thoroughly prepare.**

In a course assessed by a final examination a student's motivation may be interest in the subject or his need to pass the examination. In formal assignment assessment it is imperative that a student's motivation is interest in his work alone, for if his motivation were to be the need to get a successful mark for every assignment, we would be replacing torture at the end of the course by three years of regular torture! The importance of regular tutorials is that only by individual contact can a tutor ensure that his students are engaged in work that is worthwhile to each individual. Work needs to be planned and evaluated on an individual basis, and this requires an appropriate organization of the curriculum.

The assignment is an individual activity in which the student is expected to produce a unique communication, the planning, development and eventual evaluation of which provides the agenda for tutorials. Because it is an individual activity the individual tutorial is the most usual focus for discussion of the work, but the presence of another student or another tutor can sometimes be helpful. Even more valuable is to present the results of enquiry in a seminar, and to write the assignment paper in the light of the seminar discussion. (Seminars provide not only intellectual interaction between students and tutors, but also social cohesion; students engaged primarily in private study and tutorial can feel very isolated).

Tutorial teaching makes regular demands on a tutor, compared with lecturing where the initial preparation of a set of lectures is arduous, but less effort is required when the lectures are given again. It is often reported that preparing for a half-hour tutorial which is to be based on planning or evaluating an assignment, takes the tutor an hour or more. In aiding the student's planning, he will be searching for reference materials, and skimming through them in order to ascertain what use the student may be expected to make of them. In evaluating, the tutor will usually write a full commentary – discussing the merit of the analysis, imagination, criticism and synthesis displayed. Where appropriate he will probably check some of the sources and, on a lower plane, he will correct technical mistakes. This activity helps the tutor to recognize the intellectual abilities and inadequacies of each student and so enables him to programme

assignments to the best advantage of each individual. Through this knowledge of each student he becomes confident that he can detect the possible malpractice that is often feared by those who are unfamiliar with this kind of assessment – plagiarism.

Students are encouraged to write personal appraisals of their work as part of the development of self-knowledge. They may comment on their apparent strengths and weaknesses, of difficulties in finding sources, or of problems in understanding or expression. This personal commentary has no bearing on the grade given to the assignment and this point is stressed to students.

Procedures for grading are discussed in the next section. the grade given to an assignment is based on the merit of the work as such and in the context of the work of other students; considerations of the author are completely irrelevant.

Assignments can take many forms. They may be descriptive, analytical, critical, or creative writing based on studies in library, laboratory, studio, or field and including essays, plays, poems and reports; presentations on tape or film; constructions such as measuring equipment or electronic devices; and two and three dimensional work in the visual arts. The form for an assignment can be made appropriate to the area of knowledge under study and the educational objectives which have been indentified for a particular student. Much of the academic work of teacher education is concerned with the educational objectives defined by Bloom as Analysis, Synthesis, and Evaluation in the Cognitive Domain, and with the Affective Domain. But, sometimes in the study of the sciences, Knowledge, Comprehension and Application are the immediate objectives, and for these it may be useful to use tests as assignments. A test as an assignment is a set of questions, the answers to which can be marked more or less unambiguously. It may be answered in class by using recall as the only source of information ("closed book test"), or with recourse to text books ("open book test") or students may be given a day or two to answer, in their own time and with access to books and inter-student discussion. Restricting the time for closed book tests is usually thought to be undesirable; within limits students should have sufficient time to tackle all the questions.

The purpose of the test is to reveal the student's areas of strengths and weakness to himself, to his tutor, and, if he happens to moderate this assignment, to the external examiner. In order to gain self-knowledge it is very desirable that each student marks his own test paper and notes areas of weakness. The tutor can oversee the marking later when he peruses the papers for grading and for assessing his strengths and weaknesses as a teacher.

There is disagreement as to whether students should have notice of an impending test. Announcing test dates causes "backwash" on other activities, i.e. students tend to give less attention to their other studies, but "springing" a test unawares leads to student resentment. (In the latter case students would be notified that tests were to be given during the term, but not when.) Either procedure can produce acute stress in anxiety-prone students. One solution is to build frequent and regular "mini-tests" into the teaching programme, to create a relaxed atmosphere when doing them, and to ensure through discussion that students understand the value to themselves of the regular feed-back that the tests provide. Used in this way tests add to the learning process through the self-marking and related class discussion. It should be added that there is also disagreement as to whether tests are suitable at all for formal assignments. On this question alignment seems to follow the arts-sciences divide.

In planning a curriculum the question arises as to whether all of a student's work should lead to assignments or just part of it. I believe that the answer depends upon the type of educational activity in which he is engaged. If he is acquiring a framework of knowledge through a lecture course or reading schedule it may be best to set an essay on only one aspect of the overall subject matter in order to demonstrate the value of the subject and to encourage the student's attempts to master it. Certainly his lecture notes would be poor evidence of study and should not form an assignment. On the other hand if he is working in a framework of

knowledge previously mastered and is developing analytical, creative and critical skills it is appropriate for all of his work to lead to an assignment. Some of the problems that arise from this are discussed in Part II Section 4.

PART II A PROCEDURE FOR ASSESSMENT

There are many ways by which assessments can be processed towards a final grade. The procedure described here is mainly an account of the procedure used originally in Trent Polytechnic; changes have been adopted since then and further changes are envisaged as described in Part III Sections 4 & 5.

(i) In the notice giving formal assignments for the term, dates may be specified for the completion of tutorial assignments. If they are not submitted in time and there is not an acceptable reason for lateness, a failure grade (E) may be given.

(ii) The tutor makes written comments and these are kept with the assignment and are available for the External Examiner to read if he wishes to. They form the basis of an evaluative discussion in tutorial. After the tutorial the student retains the assignment and is required to keep it safely until the end of the course. It is his responsibility to ensure that it is available for the External Examiner. The tutor has a "Term assessment sheet" for each student and on this he enters the title of the assignment, a brief note of significant strengths or weaknesses that have been displayed, and a literal grade on the five point scale A to E. This literal grade is not revealed to the student.

(iii) In awarding the grade the tutor tries to judge the merit of the piece of work in terms of the work itself and without consideration of the ability or potential of its author. The interpretation given to grades is:

A outstanding work
B competent work, above average
C competent work, average
D competent work, below average
E incompetent work, unacceptable

Over several years, the expected distribution of grades of students who complete the course is:

A 10% B 20% C 40% D 30%

Considerable variations from this distribution are possible for any particular group of students. E, being unacceptable, represents a failure grade; it is not "expected", but is given when warranted. D is neither a failure nor necessarily a near failure, but simply the below average grade which over the years will be given to nearly one third of the assignments.

Ideally more than one tutor will be responsible for awarding the grade to an assignment. From time to time groups of staff each mark several assignments in order to establish common standards. In awarding grades to tutorial assignments a tutor may assess a number of assignments together in order to gain a concept of "average", or he may grade each as he comes to it, using the undefinable set of internalised standards which are his interpretation of A, B, C, D and E.

The grades for the assignments of a term are combined to give a term grade; the term grades for the first two years and those for the third year are combined separately to give final grades, and these two final grades are combined to give a Certificate grade.

(iv) How are literal grades combined? One way is to put the sets of grades of a group of students into rank order and to award the combined grades in consideration of an "appropriate distribution". A rank order of this type inevitably has classes of co-equals and to some extent this limits the allocation of grades, but beyond this an "appropriate distribution" is influenced by the tutor's personal concept of the distribution of merit in the group of students, i.e., he may feel that the group has more "high fliers" than usual but also a larger "tail"; alternatively the group may be "much of a muchness". Such considerations by a tutor lead to variations from the 10-20-40-30 distribution referred to earlier; although inevitably subjective, an " appropriate distribution" is likely to be fairer than a rigidly applied 10-20-40-30 formula.

An example of this method of combination of grades illustrates some features. The following list represents the grades given to the three assignments of a group of twenty students

in one term. They have been put into rank order and as it happens divide into 8 classes, most of which contain a number of co-equals. In order to produce a rank list certain rules have to be constructed. Since the assignments carried equal weight, BBC belongs to the same class as BCB. B & D, and A & E, have been considered equidistant from the average C, and therefore BDC and CCC belong to the same class. Similarly ACB and BBB belong together and so do CED and DDD. (These are the simplest rules, other more complicated rules could be used. For example, it would be decided that since A represents "outstanding work", the group of grades ACB is worth more than BBB.)

Rank list for twenty students	ACB	BBC BCB BCB	BCC AEB	DBC BDC CCC CCC CCC	CDC CCD BEC	DDC DDC DCD ECC	DDD	DDE

The tutor now awards grades for the term. Several schemes are open to him. If he feels that this is a typical group of students he may try to produce a 10-20-40-30 distribution. There are two ways of trying to achieve this in this case, and his choice will depend upon his opinion of the merit of the top four students, as in schemes 1 and 2. If however the tutor feels that this group of students contains exceptional talent he may give an allocation such as scheme 3.

Rank list for twenty students	ACB	BBC BCB BCB	BCC AEB	DBC BDC CCC CCC CCC	CDC CCD BEC	DDC DDC DCD ECC	DDD	DDE
Scheme 1	$A_{5\%}$	$B_{15\%}$		$C_{50\%}$			$D_{30\%}$	
Scheme 2	$A_{5\%}$		$B_{25\%}$		$C_{40\%}$		$D_{30\%}$	
Scheme 3	$A_{20\%}$			$B_{35\%}$		$C_{35\%}$		$D_{10\%}$

In the above examples DDE has not been graded as E. The award of the "unacceptable standard of work" grade would depend upon how far "below average" the two Ds were judged to be.

It must be stressed that a combined grade is not the arithmetic mean of the constituent grades, although arithmetic methods can be used to obtain the rank list. Thus in the above example ACB was the outstanding performance and so gained an A as a combined grade, whereas the arithmetic mean of these three grades would seem to be B. In determining an aasignment, term, final or Certificate grade it is the merit of a student's work in the context of the merit of the work of other students that is being assessed, within the framework of a distribution of grades that is moderated by tutor opinion of group performance.

The Certificate grades are named, viz: Distinction, Credit, Pass Division I, Pass Division II, and there is the non-grade: Fail. The "expected distribution over the years" is the same as for other grades, namely 10-20-40-30, and similar points apply to skewing this distribution. In drawing up the rank list of final grades precedence is given to the grade of the third year over that for the first two years. Thus in the following list Brown has formed a class separate from Jones.

	Years 1/2	Year 3	Grade Recommended
B. Brown	B	A	Distinction
J. Jones	A	B	Credit
R. Robertson	B	B	Credit
S. Smith	C	B	Credit
W. White	B	C	Pass Div. I
B. Black	B	C	Pass Div. I
G. Green	C	C	Pass Div. I

(v) Normally a student has a different tutor for each year, so three people are likely to be involved in his assessment. In addition his work may be considered by the External Examiner. (vi) The External Examiner has a three-fold role; he is arbiter at the extremes of the scale, moderator of grade distribution over the whole scale, and critic of the course.

As an arbiter the External Examiner samples the work of those candidates whom the Internal Examiners have recommended for Distinction or Fail, and makes individual decisions.

For moderation the External Examiner is presented with a complete list of assignments and the assignment grades, term grades, final grades and suggested Certificate grades. He makes a selection of assignments for perusal and, on the basis of his sampling, may recommend an adjustment to the suggested distribution of Certificate grades of the Internal Examiners. Moderation entails the same sort of judgement as was described earlier in the example of a tutor choosing an appropriate scheme for the allocation of term grades.

In Education, which is taken by all students, the Institute expects at least 10% of the work of students to be seen by External Examiners, and because of the number of students involved in this subject three such examiners are appointed to each College, the senior member being responsible for three Colleges.

External Examiners usually interview the students whose work falls in their sample, as well as Distinction and Failure candidates. Some also meet the entire year group for a general discussion of the course.

The External Examiner is also invited to give a critique of the course, commenting on the extent to which he considers the programme has reflected the stated aims and syllabus, and, if he desires, on the appropriateness of the aims and syllabus.

The work of the External Examiner is usually conducted in the College; unlike examination scripts, formal assignments are not sent to Examiners before visits. In most subjects, with 15 to 25 students, one day suffices.

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PART III DISCUSSION OF FORMAL ASSIGNMENTS

INTRODUCTION

This discussion is based on the experience of formal assignments in the Department of Education, Trent Polytechnic, after three years. The academic structure of the Department is based on every student taking two main subjects, one being Education and the other chosen from Applied Sciences, Art and Craft, Contemporary and Environmental Studies, English Studies, Geography, History and Mathematics. Education and the other Main Subject have an equal allocation of time in the programme and roughly an equal allocation of staff. Each tutor has 15 to 25 students for whom he is responsible in one Main Subject, and he sees each student for an individual tutorial lasting half an hour once a fortnight. In addition, of course, he meets his students in various types of group for seminars, lectures, workshops etc. (Apart from main subjects, students are engaged in curriculum work and school work, but these are not assessed by formal assignment although this possibility is under consideration.)

Three questions form the foci of Part III. Why did we develop formal assignments? How do we value it after three years? What changes do we envisage?

THE DEVELOPMENT OF FORMAL ASSIGNMENTS IN 1967

The eight founder members of the Department collectively had a wide background of experience in teaching and especially in teacher education. Assessment by formal assignment was devised by them between May and September 1967 and successfully presented to the Institute of Education in November. Five major arguments were used and are quoted here from a Department paper (1) written in August 1968.

"The first argument results from the fact that the role of the conventional end-of-the-course examination is to test and not to teach. This is in our view a tragedy, for the end-of-course examination is seen as the culmination of three years of study; the student is geared to the production of excellence, he is prepared for his academic "finest hour", but the result of his twelve hours struggle with the examination questions disappears into oblivion once he has strung his papers together and handed them to the invigilator. The only product of his work is a tardy, terse response such as "Pass Division One". Throughout his course he has been able to follow up his written work by critical discussion with his tutors. Suddenly, when he produces what he is led to believe will be his exhibition of mastery of his subject, his tutors become mute. Surely the proper culmination of his studies should be the beginning of his teaching career. The student is being prepared for a career – not for an examination.

"It is not denied that we have a duty to test students to assess their achievement and their potential, and in particular to detect those few who are judged to be inadequate, but we believe that assessment by formal assignments is a more effective method of doing this than end-of-the-course examinations.

"The second argument is against conventional **written** examinations – because of the limitations of time they do not result in work of academic excellence. Some students write well under examination conditions, but most do not. Examiners frequently comment on poor expression, faulty grammar and mis-spelling. (Appended are some quotations from the University of Nottingham, Institute of Education Examiners' Reports for 1967.) Worse than errors of technique however is the consequence of most of us not being able to think logically, critically or creatively when under strain. Examiners are obliged to ask questions to which students can try to construct and present a well written answer in less than 60 minutes. (Were we selecting candidates for careers in journalism this might be intelligible.) Very few students can produce academic excellence under examination conditions, and so the culmination of their

studies suddenly becomes an academic anti-climax. Nearly everybody passes, but very few have been able to create answers of which they might be proud.

"Formal assignment provide the time for students to think, rethink, write and rewrite and so to give of their best for the examiners to assess.

"The third argument is also against **written** examinations. Writing is only one of several media in which a student can demonstrate his merit, why restrict him to this one? Assessment by formal assignment gives the student opportunities to express himself by a variety of methods, including the written word (essays, poems, reports), the spoken word (tape recordings), and visual forms (films, photographs, sketches, models).

"The fourth argument, against all conventional examinations, is that while the majority of candidates suffer from slight nervous tension, in a small proportion there is acute tension which seriously affects examination performance and sometimes health. Already our experience tends to confirm our expectation that formal assignments produce less anxiety.

"The fifth argument is that to assess students on one fortnight's paper in a three year course is to overlook the fact that academic performance fluctuates in every individual, being influenced by physical and mental health. Some examination candidates work below par because of virus infections, hay fever, headaches, insomnia, menstruation pains, emotional stress (including the above-mentioned "examination nerves") and adverse environmental factors (such as high temperature or high humidity in the examination room). On such grounds it can be argued that assessment over a three year period is fairer than over a fortnight."

The following quotations from the reports of external examiners for the Institute's Certificate examinations of 1967, referred to in the second argument, added considerable force. In the paper quoted they appeared under the caption: "Question — Do the following comments refer to the competence of students in general or to their performance under the pressure of a three hour examination?"

Divinity: "the mediocre students . . . had too often been content to reproduce in answers to the questions set such parts of lecture notes as seemed to them more or less appropriate."

English: "(I wonder) whether the kind of paper that brings out the best in the strongest students may not sometimes be too much of a strain for the student who is reasonably diligent but lacks critical perception."

English: " The time is almost ripe for a thorough going reconsideration of the value of the three-hour English Literature paper . . . I cannot help thinking that even more radical rethinking about 'English Literature' teaching and examining may be necessary. I should add that this problem is not in any sense a local one, but covers almost the whole of English Literature teaching and examining on a Higher Education level."

Geography: "Candidates from more than one college seemed to show an inability to apply the work learned in the systematic fields of the subject to regional and area studies . . .

Handicraft: "The quality of presentation, the handwriting, spelling and grammar were in too many cases poor and very few candidates observed the instruction in the rubric that answers should be illustrated as fully as possible with careful drawings."

History: "it was noticeable that the better students were able to pursue an argument while the weaker fell back on narrative."

Music: "many candidates failed to read the question carefully, to give adequate thought to the presentation of their material or to provide appropriate or accurate musical illustration."

Philosophy and Psychology of Education: "there were the usual difficulties of relating information read to information gleaned from personal experience and of developing a logical argument in place of a diffuse word picture.

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Russian: "One of the things which struck me forcibly about the majority of the scripts was the poor standard of English spelling and punctuation . . . It seems to me utterly ludicrous that students of this calibre should waste their time getting a smattering of Russian, . . . instead of learning to spell and punctuate their own language."

A VALUATION OF FORMAL ASSIGNMENTS IN 1970

In June 1970 a "Report on the Evolution of the Department" was submitted to Committee B of the Nottingham ATO Teacher Education Survey, which was part of the nation wide Enquiry established by the Secretary of State for Education and Science. The following extract (1) is a commentary on three years experience of formal assignments.

"We have found that Formal Assignments, as opposed to an end-of-the-course examination, do provide great opportunities for individual development. To maximise these opportunities the individual tutorial is essential. In most Sections of the Department there is a programme which develops through lectures, seminars and/or reading, and this programme provides stimuli from which students choose assignment topics. The individual tutorial serves two main functions: first, to assist each student in planning his assignments; and second, to discuss and evaluate the completed work with the student. A half-hour individual tutorial can involve a tutor in an hour or more of preparation. The student may have chosen a topic which the tutor feels he himself needs to follow up by searching out sources and finding new areas of information which he can suggest to the student and when the finished product comes to him for evaluation it may take him a long time to read through and produce his commentary. This work is very demanding of the tutor; it is also, of course, a very rewarding experience in which the tutor recognizes that, like the student, he is gaining further intellectual experience.

"In evaluating an assignment most tutors adopt a practice such as this: brief marginal notes or footnotes are made throughout the text and at the end a page or two of comments, by the tutor, may be inserted. In an essay comments may be made on the structure, the development of the topic, the use of sources, the appropriateness of the sources, the adequacy of documentation, the fluency of the writing, and so on. From the beginning we have felt that remarks rather than marks are the important contribution that a tutor has to make. It is Department policy that grades A, B, C, D, E, are not put on a student's work and are not communicated to him. Further reference to this is made later in this paper.

"The types of work carried out in a regime assessed by Formal Assignments can be quite different from a programme which would lead to an end-of-the-course examination. In many of our sections each student is engaged in pieces of work different from his fellows and this would mean that, had we an end-of-the-course examination, tutors would need to set not one paper for students, but 20 separate papers. For example these two lists show some of the assignment topics which were submitted to two tutors during the second term of this academic year.

Applied Sciences
3rd Year

Seed dispersal
Sense organs
Aspects of evolution
Mutated genes
Locusts
Mouse chromosomes
Lichens
Semi-conductors
Physics of music
Burning and scorching
Pulsars and quasars
Apollo missions
Volcanoes
Textiles
Selective weed killers
Aspects of corrosion
Desalination
Analysis of mains water
Avalanches
Pain
Transplants
Pollution of rivers
Dreams
Epilepsy

Contemporary and Environmental Studies
1st Year

Man and Society
Women in society
Does punishment fit the crime?
The immigration question
Mass media
Gypsies – their place today
Age of protest
Prejudice
Housing problem
The changing nature of the family
Drugs and their social consequences
The family as an institution
Alcoholism
People and the police
Attitudes to the ruling bodies
Based on the St. Ann's Well area
The part played by the church
Patterns of play
Attitudes to school
Leisure activities
Demolition
Social welfare among the poor
The problems of old people
Origins of the inhabitants

"Another difference from a regime leading to an end-of-the-course examination is that students cannot opt out for a period of say six months and then switch on again just before the examination. Formal Assignments require students to be active throughout the whole course, although in the discretion of a tutor it is possible for somebody to back-pedal for a while and tutors recognize that this may be inevitable or even valuable in a particular student's development. This places more responsibility on the tutor for watching over the educational development of his students.

"In one of our early documents we said that "Formal Assignments involve an integration of teaching and assessment". In planning a course which leads to an examination it is unusual to write the questions at the time of course planning, but we have found that in developing a scheme which will be assessed by Formal Assignments the planning of the areas in which the assignments will fall becomes an integral part of the overall plan. Course objectives lead naturally to Formal Assignments. This has been particularly true in the Education section where three groups each of six tutors work together as three team teaching units. The need to plan Formal Assignments has led tutors carefully to crystallise their objectives before starting the course.

"It has been encouraging to see the extent to which students have used other methods of communicating their results than the straightforward essay. Tapes, films, models and folios of annotated photographs have been submitted as assignments.

"We have now met our External Examiners for the first time in the assessment of a generation of students, and it is clear that whereas the examiner can sample only a small amount of the assignment material he can serve a very valuable function acting as a critic of the course. Some of us who, in previous contacts with External Examiners elsewhere have fretted over the

bickering on numerical marks awarded to this student or that, have by contrast been delighted to engage in educational dialogue with our examiners.

'When we first developed the case for Formal Assignments some people wondered whether plagiarism would prove to be an overwhelming problem. In one of our early documents the following was written in order to show that we recognized the potential difficulty: 'We believe that direct plagiarism and ghost writing are unlikely to occur in a teaching situation where there are regular individual tutorials in which students' work is discussed in detail with them: if such direct malpractices are detected they will be viewed as seriously as cheating in a conventional examination. It is worth commenting, however, on plagiarism in general. There is a continuum from the re-hashed trivial idea, the source of which has been completely forgotten to the re-written treatise stolen word for word; much of our education is found along this continuum. It is not an uncommon experience for External Examiners, reading through a batch of examination scripts, to find the same presentation of ideas in paper after paper, each appearing to be the original thoughts of its writer. It is perhaps curious that in conventional examinations no dishonour is seen in this, provided that it is based on memory and not cribs, yet it is undoubtedly plagiarism, of teacher or textbook. In other words, plagiarism is not the clear-cut issue that it is sometimes made out to be.'

"The experience of three years is that, while students sometimes err on the side of not always quoting references and on occasions make rather full use of the ideas of other people, we have not detected instances of 'the re-written treatise stolen word for word'. We have found that it is important early in the course to give clear-cut instructions on documentation, because it is quite clear that students coming to us from schools and elsewhere are often not at all clear on the academic values relating to the use of others' materials."

THE PROPOSAL TO ABOLISH GRADES (1970)

By 1970 general dissatisfaction with grading was apparent in the Department and a case was presented to the Institute for the abolition of all grades*. The four arguments are set out in the following further extract(1) from the "Report on the Evolution of the Department."

"Tutors and students generally are enthusiastic about Formal Assignments. A recent poll of student opinion showed that more than 90% of our students prefer the system of Formal Assignments to an end-of-the-course examination. But notwithstanding this we have several criticisms which originate from both staff and students. Recently, the Department presented a case to the Institute of Education advocating the abolition of grades in the Certificate so that in the two main subjects students would either pass or fail. This was because four problems have arisen in the use of grades in Formal Assignments: these are discussed below. The first problem is what we call the unidimensional character of the grade; second, the reaction of students to the confidential grade which is not shown to them; third, the tendency of students to avoid choosing assignments in areas in which they lack confidence; and fourth, the reluctance of students to engage in group activity because of the obvious difficulties that the tutor has in attributing credit to individuals. It is felt that the 'standard achieved' indicated currently on certificates has no bearing on a student's teaching career, but that a final profile built up through the course and describing the student's prowess in many dimensions would be a much more valuable document.

* This is still under discussion at the time of writing. If not accepted by the Institute it is at least proposed to reveal assignment and term grades to students — a reversal of earlier policy.

"In the Department the 5 point-scale grades given for assignments are not revealed to students; instead students engage in individual dialogue with their tutors on the merit and achievement of their work. Tutors make written comments on the initiative, imagination, analysis, logic and industry that is displayed by an assignment, on the selection and use of sources, and on the skill and style of presentation. However, having given a commentary in many dimensions on the merit of the work, tutors have to condense their appraisal into the unidimensional scale of a confidential grade A, B, C, D or E. Discontent with this system had led to the question: What is the value of the Certificate grades? Does the 'standard achieved', as indicated on the Certificate, have a bearing on a student's appointments in teaching? The answer seems to be a clear 'No'. When he applies for his first post no Certificate is available. The employer makes decisions on the basis of a confidential reference written before the end of the course. In later appointments the most important factor is likely to be the reference of the teacher's current head. If evidence is sought from the College it is the reference again which is asked for.

"The effect of grades on students is a second problem. In 'The Assessment of Students by Formal Assignments' (1968) we said: 'What does a grade **mean** to a student? It is a way of comparing his work or progress with that of other students. This concentrates his attention on competing against the standards of others and distracts him from competing against his own present standards of work. His aim should be to produce the best work of which he is capable. This is what is needed in his professional career and it is while he is a student that he should receive help in setting standards for himself. It is also the case that grades foster a competitive and divisive atmosphere, which militates against mutual help and trust.

"What **effect** does a grade have on a student? Presumably an A or B will please; a D dishearten. The tutor's role is to encourage the student to work at his maximum potential. If all students had the same intelligence, attainment in the subject matter, fluency in writing, and emotional pre-occupation, then grades might be expected to influence their level of motivation uniformly and positively. But students differ. One man with previous experience of the subject does little work, but nevertheless turns in an essay of merit "B". Another man, lacking the experience of the first, and being limited as yet in fluency in writing, works very industriously but his essay only merits "D". Reveal these grades and the first man is reinforced in his idleness and the second feels that his efforts are in vain and gives up. This is the danger of grades. In vain does the tutor write 'you could have done better if you had . . . . . ' to the first man, and 'Well done, now you must concentrate on . . . . . ' to the second. The grade is seen as all-important, and revealing it seriously interferes with the tutor's task of encouraging each student to produce of his own best.

"The key to the decision that grades should remain confidential is the belief that when grades are awarded it is the grade alone which a student takes note of and written comments are ignored. This can be a major handicap to a tutor in his attempts to develop each individual student towards maximum academic potential.'

"The above comments were written in the first year of formal assignments. Looking back from the third year it is clear that in one respect these views were naive. Even though grades are not communicated to a student they still have an impact on his morale; he wonders which letter his tutor has marked in his confidential file and at times he frets at not being told. Our experience of three years shows that this is a much more important problem than we had expected in 1967.

"A third problem, which we had not recognized in 1967, is that assessment by the cumulative grades of formal assignments tends to dissuade students from tackling individual work in fields in which they lack competence. For example, a student who is good at imaginative writing but weak at developing logical argument is likely to choose creative assignments rather than ones that require constructive development. (If all students are required to do the same assignment

this is less of a problem, but we have favoured flexibility in order that tutors can respond to the individual needs of their students.)

"The grade given for an assignment is an assessment of 'the merit of the piece of work . .,. irrespective of the previous achievements or abilities of the author'. This interpretation of the meaning of the grade was chosen in 1967 so that the moderation function of the external examiner could have some significance. It is now realized that this tends to prevent students from accepting their tutors' advice to engage in fields in which they lack strength and ability. They may choose to develop their strengths rather than remedy their weaknesses, on the grounds that this will lead to better grade.

"One solution to this important problem would be to allow the student to select a proportion of his assignments for his final assessment, but then we would not be looking at the over-all performance of a student but just at the aspects in which he excels. Is there any value in describing two students' performances as of 'credit standard' when one excels at creative work, but is weak at logic, while the other is good at logical argument, but has little imagination? The profile seems a much more satisfactory approach to assessment and we seek to abolish all grades and develop the use of profiles.

"A fourth problem of grades concerns group work. If six students work together on a project, how does a tutor give a grade to their final work? Perhaps they are producing one report as a group activity and it seems rather unnecessary that each person should produce an individual paper in order that he achieves some form of grades. If grades were no longer to play the pre-eminent part that they do, this group work would be much encouraged. Some tutors have already had experience of paired working and group work and have almost necessarily had to give each student the same grade."

EVALUATION AND ASSESSMENT

"Evaluation" and "Assessment" have become precise technical terms in some discussions in the Department of Education, Trent Polytechnic, with the following meanings:

EVALUATION – Critical analysis of a student's assignment by the student himself, by his tutor and, possibly, by other tutors and students. The analysis may be in a number of dimensions, using a variety of criteria, and is recorded in prose and not in grades or marks. The evaluation is discussed in individual tutorial.

The aim is to give credit where due and to stimulate the student to achieve high standards in future work.

ASSESSMENT – Critical analysis of a student's assignment, by tutors only, to determine the academic merit of the work in the context of other students' work. The aim is to provide an assignment grade which will contribute to the final Certificate grade.

It has been suggested that a workable solution to some of the problems associated with grades (Section 4) would be to **evaluate** each assignment as it is completed but to leave **assessment** until a two week period during the final term when all assignments have been completed. This would entail tutors re-reading each student's three year collection of assignments during the assessment period, and awarding an appropriate grade. The evaluative comments made on each assignment would help in determining this assessment grade.

The prime purpose of evaluation, as defined here, is to facilitate the teaching/learning process. One desirable development in formal assignment work is the identification of criteria of evaluation; making these explicit to students is obviously worthwhile. It is easier to recognize such criteria in the cognitive domain than in the affective domain. The following list is loosely based on one drawn up by Yeomans (1970) (20). It identifies some of the criteria appropriate for evaluating an essay in say Education,History, Geography or Science.

Criteria of definition,for example:
Has the writer defined the purpose of the study?
Has he indicated its scope?

Criteria of data, for example:
Is the data which has been chosen relevant?
Is it representative of the field?
Is it accurate?

Criteria of discussion, for example:
Has the writer analysed his subject matter effectively?
Has he examined it critically?
Has he argued logically?
Are his arguments relevant?
Is the discussion systematic and constructive?

Criteria of originality, for example:
Has the writer used novel data?
Has he suggested novel ideas?

Criteria of presentation, for example:
Does the essay fulfil the stated intentions?
Is the essay a fluent piece of writing?
Is there a stimulating beginning and an appropriate ending?
Is it presented grammatically and neatly?
Are the references cited correctly?

16.

PART IV FORMAL ASSIGNMENTS IN HIGHER EDUCATION

INTRODUCTION

Assessment by formal assignment has developed in teacher education; is it exportable to other branches of higher education? It is pertinent to ask this question in the context of the present position and status of course-work assessment in this country.

COURSE-WORK ASSESSMENT IN HIGHER EDUCATION IN BRITAIN

Although a number of papers have appeared in recent years on examinations in British higher education, and thorough reviews have been prepared (2), (7), little has been written on course-work assessment and descriptions of procedures are scarcer than polemics.

It is mainly in teacher education that course-work assessment has contributed significantly to the final award. Most colleges of education, with the exception of those belonging to the Bristol University Institute of Education and now also the Nottingham Institute, base assessment on course-work **and** end-of-the-course examinations. As indicated earlier this tends to debase course-work and to make the examination the "real" test. The Bristol University Department of Education has used course-work assessment alone since 1921 for the post-graduate Certificate of Education, and the colleges of the Bristol Institute have done likewise since the formation of the Institute in 1947 (10), (12). The innovator was Professor Helen Wodehouse.

Lang (12) has given a brief account of the system operating in the Bristol colleges:

"The essential structure of the assessment system is that at the beginning of each session students are given the following information in relation to each subject of study:

(a) An outline syllabus of work to be covered during the session.

(b) The number and nature of the assignments.

(c) The approximate date for submission of assignments.

Assignments may take many forms, such as reports of directed reading, sets of problems, preparation of seminar papers, long or short essays, special studies or projects, periodic internal tests (at times specified previously to the students concerned), field studies, laboratory exercises, workshop or studio practice, work with children and young people in school and elsewhere.

"An external examiner for each subject in each college is appointed by the university. He has access to the work of every student in his subject, and acts as final referee .... The average student finds that under this system he is committed to a programme of study which has been mapped out for him, but which allows him to devote more of his time to special aspects of his work without having at the same time to prepare for an all-determining final examination."

Humphreys (10) writing in 1958, showed that in the Bristol Department of Education assessment was based on several essays plus an evaluation of tutorial and seminar performance – "in the light of several people's personal knowledge of the student". This reveals an important difference between the Bristol assessments and formal assignments. In the latter, tutorial and seminar performance are excluded from contributing to the assessment.

Richardson, also of the Bristol Department of Education, has written a perceptive account (14) of the personal interactions between student and tutor that result from mutual awareness that such assessments are to be made; she concludes that for both tutors and students this provides useful learning experiences. Her analysis of the tutor's task indicates the personal involvement that arises in this type of assessment compared with the more impersonal nature of examination.

"The closer a teacher's relationship with a group becomes, the more painful becomes the task of deciding what the final grading is to be for each member, even if the grading is on a five-point scale and does not necessitate placing individuals in an order of merit. The final decision demands of the teacher a recognition of his dual responsibility. On the one hand he has to fulfil his obligation to the community by giving genuine information about his students' achievements, both actual and potential, to those who will be their employers or colleagues in the future. But he must also fulfil his obligation to his students, by trying to ensure that they understant the nature of these achievements, their promise and their weakness, and – in the rare cases of failure – that they are prepared to meet this failure."

In British universities course-work usually counts little towards the class of degree except for some contribution of practical work in the sciences. In addition achievement of a specified standard may be a condition of remaining on a course. An investigation by Black (3) of university degrees in Physics revealed that course-work usually accounted for 10-20% of final marks, although in the unconventional Physics Department of the University of Surrey (8), one third of the marks are for course-work. In the University of East Anglia for some degrees course-credits contribute one third or a half towards the degree (9) and aspects of course-work are also prominent in the degree awards of the English Department of the University of York. (5) The Hale Committee Report (9) on University Teaching Methods (1964) noted that:

"It is increasingly common in science courses to take account, on the final examination, of the quality shown by students' performances on projects, practical work, or field courses. The quality of such work may give a better indication of the student's potential for independent work than the traditional examination . . . but nevertheless the contribution to the final mark is slight.

Course work seems to be slightly more prominent in degree schemes of the Council for National Academic Awards; this may be because of the experience of colleges of technology in National Certificate and related schemes where course-work assessment has for many years been important. In the United States assessment by course units is normal.

In 1964 the ATCDE held a sumposium entitled "Final Examination or Continuous Assessment?" and Snowdon (17) has reported on the main points of discussion. In the following table fifteen points made in his paper are listed and I have commented as a proponent of formal assignments.

Comments on final examinations made at the ATCDE symposium	**My comments as a proponent of formal assignments**
1. A goal for study is supplied and its competitive nature is a further stimulus.	**Each formal assignment is a goal and dialogue with the tutor is a further stimulus.**
2. The testing is fair because it is under comparable conditions for all students.	**This is illusory. People react differently and FA enable people to be tested under conditions fair for them.**
3. The demand for a quickly written essay or solution to a problem is similar to demands made in professional life.	**In journalism, yes. No other profession is restricted to one hour per essay.**
4. Deep interest in a few topics is discouraged because the examination covers a whole syllabus.	**Often true. F.A. are flexible and can cover studies in depth or breadth.**

5. Final examinations cause stress and anxiety, which in some students is acute.	Agreed. F.A. can cause stress and anxiety, but less so than examinations. Tutor's personality important here.
Comments on course-work assessment	
6. Individual interests can be encouraged in depth.	Agreed. Tutor's "all-roundness" important.
7. Assessment can be on material which has been carefully reflected on and re-written.	Agreed. Tutor's own skill at analysis, criticism and synthesis are important.
8. A peak period of stress and anxiety is avoided, but continuous assessment can lead to continuous stress.	Agreed. See 5 above.
9. A fair evaluation can be made of those students who "examine badly".	Yes – in terms of those who do badly because of acute stress.
10. "Non-objective" criteria may be used in evaluating students' work.	F.A. assessment is based on tangible evidence of study and should exclude "non-objective" criteria.
11. There is too close a relationship between students and tutors which implies continuous surveillance.	Unless there is a relationship the tutor can give no guidance. F.A. work requires social skills of the tutor.
12. Regular activity is required rather than "one large leap"; some people work better in spurts.	For such students the F.A. should be aligned to their spurts of activity.
13. Plagiarism may invalidate the assessment.	Plagiarism indicates weak tutoring. Insistence on proper documentation and sampling of sources is part of a tutor's work. Tutorial discussion soon reveals the undigested rehash.
14. Students may be dissuaded from experiments in study for fear of occasional failure which affects their cumulative marks.	Agreed. (See Part II, Section 4), A gradeless Certificate would answer the difficulty, or assessment based on the student's selection of a few F.A.
15. Continuous assessment is very demanding of tutors and external examiners.	Not for external examiners, if they sample. (See Part I, 4(vi).) For tutors, agreed!

Snowdon also draws attention to the difference between assessment used as a teaching technique, providing students and staff with feedback on the learning process, and used as an "objective" means of grading ability and performance. He notes that current practices seem to confuse these two. I would claim that we have deliberately combined these two in formal assignments, while trying to minimise the latter on the grounds that it is a student's intellectual development that matters, rather than his intellectual achievement at some instant in time. Our role as tutors is primarily to educate our students; measurement for the use of the outside world is of minor significance, excpet for the acceptability measure of pass/fail.

Beard, in a monograph on "Objectives in Higher Education" (2), stresses differences between course-work assessment as feedback for the learner and feed-back for the teacher:

> "In the former case, it may take the form of programmed learning, test questions on topics recently learned, discussion following questions, fairly detailed criticism of experimental work, reports or essays, etc. In the latter it is more likely to consist of tests every few weeks which are intended to have a motivating effect on students – since failure to work will be demonstrated, and abler students, at least, compete for high positions."

As with Snowdon's dichotomy, it seems to me that course-work can serve both functions without the need for distinction. Beard is referring here mainly to instruction work, where the objectives in Bloom's terms are Knowledge, Comprehension and Application, and this can be included in formal assignment assessment as described in Part I, Section 3.

Beard includes among the problems of using course-work assessment for a final grade the point that some teachers habitually mark lower than others and that some teachers may mark lower if they happen to be at loggerheads with a student. This is of course applicable to all forms of assessment – by examination or otherwise. In formal assignments we attempt to achieve common marking standards by interchange of assignments and since this occurs all the year round rather than only in the examination season it may be that common standards are more easily reached.

C.B. Cox (6) writing under the title "In Praise of Examinations", comments on what he believes to be the objective nature of examination compared with the subjective judgements made in course assessment.

> "How are we to stop the professor from exaggerating the virtues of his friends and relatives, or, more subtly, those likes and dislikes which so easily warp judgement? The authority of exam results protects the student from the need to curry favour."

Is Cox suggesting that the professor doesn't recognize his students' handwriting on nameless examination scripts? Tutorial teaching means that internal examiners are bound to know whose script they are reading and Cox's point is mischievous because it challenges the professional role of the teacher by implying that he may not work in good faith.

Cox considers that continual (sic) assessment can have the opposite effect to providing incentives:

> "It encourages students to grade themselves too early and too unambitiously for their good . . . . Bad marks earned near the start of a course become millstones; there they are, and no improvement can get rid of them . . . At the other end of the scale, good marks can be a disincentive to a good student . . . he may feel little extra effort is needed to stay where he is."

These points were part of the original reasons for our not revealing grades in the Department of Education of Trent Polytechnic – as discussed in Part III, Section 4. The problem lies not in the regular nature of the assessment but in the uni-dimensional grade.

Ongley (13) lists similar criticisms to the above and adds his concern that:

> "There is no differentiation between the poor beginner who has steadily improved and the man who has equally steadily fallen back. The difference is apparent only to the extent to which greater weight is given to the later marks. To predict future performance – an important role of examinations – what must be assessed is the ability of the graduate. Yet this

estimate is what at best is still blurred in continuous assessment."

Concern about the cumulative nature of marks is refuted by Richardson (15), she suggests that the purpose of course assessment:

" . . . is not to add up marks for individual pieces of work but to look at the student's work as a whole, particularly as an indication of the rate and rhythm of his development and of his ability to make progress by fostering his capacities and eliminating or minimising his weaknesses. The significant thing is, not the sum of the student's work, but the progress he has made from first to last . . . . . "

Our aim is to provide education, not to measure.

Starr (18) has reported on a correlation study between the final examination marks and course-work marks of 111 post-graduate students taking a one year Education course at Queen's University, Belfast. The correlation between the marks for five 3 hour examination papers and the marks for two long essays and an Education Diary (student's notes of school visits and lessons with work on a special topic) was $r = 0.52$. The problem with this type of correlation study is the interpretation of results. Is a high correlation desirable or undesirable? Those who are satisfied with the validity of examinations will seek a high correlation while recognizing that as such it tells little about what is being measured – low correlation may be because different attributes are being measured, or because the measurements are unreliable.

Underlying any debate which compares examination assessment with course-work assessment is a vital difference in objective, which is hinted at by Taylor (19) though not expressed overtly. It is this. **Course-work assessment measures the exposure to an educational environment and the worth of educational activity throughout the course. Examination assessment measures the attainment in knowledge and the proficiency in intellectual skills that has been achieved by the course.** Some of the arguments against course-work assessment or against examinations can be resolved by improving the systems, but having done this there remains a fundamental distinction between "exposure throughout" and "proficiency at the finish".

FORMAL ASSIGNMENTS FOR MEASURING "EXPOSURE" TO HIGHER EDUCATION

Could assessment by formal assignment be generally used in higher education as an alternative to examinations?

Examinations have two main functions: they motivate students towards study and measure the success of study.

Examinations are an obvious source of motivitation. Although teachers may wish their students to be motivated by the intrinsic interest of the subject rather than by the threat of examination it is generally felt that examinations quicken the fast learner and hasten the slow. Electric shocks would have the same effect. Both are good instructional techniques; neither is education.

By replacing the end-of-the-course steeplechase by regular small hurdles, by encouraging the student to build his own hurdles and by discussing his performance at each hurdle, we find that motivation comes from interest in work and not from fear of failure.

The roles of examinations as a measure of the success of study are several. The certificate, diploma or degree awarded after the final examination gives to the future employer a measure of a student's achievement, which he would find difficult to ascertain otherwise. The award also gives the student an assessment of achievement. Both student and prospective employer may use this measurement as an indication of potential achievement, though there is no guarantee that this extrapolation is trustworthy. It is likely that an **objective** measurement made over several years will provide a more accurate prediction of future achievement than a similarly objective measurement based on a fortnight of intensive examination, while weighting the final year provides recognition of the expected development in academic ability through the course. It is

reasonable to believe that the procedures described in Part II enable formal assignment assessment to be as fair, just and objective as the best traditional practices for final examinations.

A note of caution needs to be expressed because formal assignment assessment has developed in teacher education, which has certain characteristics not necessarily shared by other branches of higher education, for example low drop-out, high professional orientation, single prospective career with little likelihood of unemployment. In particular the most important attribute of a student-teacher is his performance in the class-room – and this is not assessed by formal assignment. Teaching ability is the prime quality in which employers are interested, and usually the extent to which they are concerned about academic ability is the extent to which they believe this affects classroom calibre. It follows from this that the Certificate grades in main subjects are much less significant to the career of a teacher than degree class is to many of the career open to graduates. "Distinction" or "Pass Division I" are soon forgotten – unlike the permanent nature of the academic labels "First" or "Lower Second". It could be argued that in consequence it is less important that the assessments made in teacher education are accurate, but irrespective of this we believe that assessment by formal assignment is at least as accurate as final examination assessment. Earlier it was suggested that course-work measures exposure to educational activity and examination measures attainment and proficiency. In teacher education in Bristol and Nottingham all the assessment of academic work is in terms of exposure, while the professional skills of teaching are assessed by a final examination (a practical one, of course).

The Robbins Committee listed four major objectives for higher education (16), viz:

(i) Instruction in skills suitable to play a part in the general division of labour.
Iii) Promotion of the general powers of the mind.
(iii) The advancement of learning.
(iv) The transmission of a common culture and common standards of citizenship.

Of these (iv) is perhaps not a teaching objective because it develops through living in a community, while (iii) is primarily the research function of a university and mainly dissociated from undergraduate teaching, but (i) and (ii) are certainly teaching objectives for undergraduates.

The most meaningful measurement of success in (i) must be a test of proficiency and attainment at or near the end of the course. But is this true of (ii)? Apart from intelligence (which itself generates much argument), there are no "powers of the mind" which are measurable, but nevertheless most teachers would recognize the following as being includable in a list of "powers of the mind":

Descriptive ability – accurate reporting
Analytical ability – asking the "right" questions
Logical ability – structuring argument
Problem solving – inventing and testing hypotheses
Creativity – fertile imagination with unique ideas
Judgement in facts – assessment and evaluation of facts
Discernment in values – assessment and evaluation of values
Synthesis – integration of any of the above
Effective communication – speech and writing that is readily "available" to the recipient.

No recognized measurements of proficiency or attainment in these are available, and so, accepting these as worthwhile, we can only measure the exposure to activity which encourages them. The flexibility of formal assignments gives opportunities for measuring this exposure, because of the diversity of activity which can be presented for tutorial discussion.

At present many British degree courses only measure exposure to such activity by the number of years of attendance required of students; three years usually being considered appropriate. Assessment by formal assignments might be an improvement.

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